Grading Rubric : Research Assignment 7 FINAL REPORT

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1. **Miscellany (5/5)** 
   1. The report must be written in LaTeX using the emulateApJ or MNRAS formatting. ( 1/1)
   2. Informative Title, Name (1/1)
   3. Proper Grammar ( 1/1)
   4. All references properly cited (1 /1)
   5. Acknowledgements with code citations (1/1)
2. **Abstract ( 4.5/5)**

(a) A sentence that defines the Broad Galaxy Evolution topic 1/1  
(b) A sentence that says why the Galaxy Evolution topic is important 1/1

(c) A sentence that introduces the simulations 0.5/0.5

(c) A sentence that says what specific simulation question you are exploring 0.5/0.5

(e) A sentence(s) that states what you found 0.5/1

did not clarify if discussing stars or dark matter - not specific enough  
(f) A conclusion about importance of finding(s) for the Galaxy Evolution Topic 1/1

1. **Keywords (6/10)**
   1. 5 keywords listed and defined in the text (2 per word)

* halo spin has a specific definition that isn’t just rotation. -1
* halo shape definition should have some discussion of how shape is defined e.g. typical shapes, axial ratios -1
* relaxation time wasn’t an allowed keyword -2

1. **Introduction ( 9/ 10)**
   1. Define the Proposed Topic in Galaxy Evolution (par 1) 1/1
   2. State why this topic matters to our understanding of galaxy evolution 1/1
   3. Define “Galaxy” according to (cite) Willman & Strader and “Galaxy Evolution” 0.5/1

stars are baryons - the repetition indicates misunderstanding

* 1. Overview our current understanding of the topic (par 3) 2/2
  2. What are the open questions in the field? With citations (par 4) 2/2
  3. Cite at least 3 journal papers (not including willman & strader). Use BibTex for formatting citations 1/1
  4. Include at least one figure from those papers to motivate your work – the figured must be discussed in the text. Caption must have citation, not plagiarized + punchline (what is the takeaway message) 1.5/2

unclear what “but will mainly have distinct areas” means. what is the dotted line

1. **Section 2: This Project: ( 5/5)**

(a) State what question(s) you are exploring (Paragraph 1) 1/1

(b) Which of the open questions does this project address? (Paragraph 2) 1/1

(b) Why is the open question interesting/important? How will your study address the question? (Paragraph 3) 3/3

1. **Section 3: Methods ( 8/10)** 
   1. Paragraph 1: describes the simulation you are using and what code was used to create it (citations) 0.5/1

where did the LMC and SMC come from ? simulation is MW, M31, M33

* 1. Defined N-body 1 /1
  2. Paragraph 2 : Overview approach. 1.5/2

why the snapshots you selected (what is the time intervals? )

* 1. Include a figure to describe methods with caption 1/2

figure caption not clear - what snapshot, “before during the merger”? Figure not discussed in the main text

* 1. Paragraph 3: Describe calculations with terms defined 2/2
  2. Paragraph 4: Describe the plots you need 1/1
  3. Paragraph 5: Hypothesis   1/1

1. **CODE: (9/10)**
   1. Code header that explains the goal 2/2
   2. Code is documented 1/2

need more code documentation. needs to be clearer where mixing ratios beingdefined. Sometimes comments refers to disk properties …

* 1. Significant work done in extension of code from class work. 4/4
  2. Code Github Repository is well organized and Code for Final Project is well documented.2/2
  3. Code check-ins attended **if 2/3 are not attended/rescheduled this entire section is graded as 0.**

1. **Section 4: Results ( 18/20)**
2. Paragraph 1: Describes Plot 1 4/4
3. Plot 1 included with caption + punchline 2/4

captions for Fig 3 and 4 - be clear that these are 2D histograms, explain what the color gradient is actually computing explicitly. would have been useful to have equation numbers to point to.

1. Paragraph 2: Describes Plot 2 4/4
2. Plot 2 included with caption, independent code+ punchline and quantitative 8/8
3. **Section 5: Discussion (10/15)**
4. Par 1: Result 1.
   1. Does the result agree or disagree with hypothesis? 3/3
5. Par 2:
   1. How does this result relate to existing work ? 0/5

missing

* 1. What is the importance/meaning of this result for our understanding of galaxy evolution? 4/4
  2. What are the uncertainties 3/3

1. Repeat for subsequent results
2. **Section 6: Conclusion ( 10/10)**
   1. Paragraph 1, Summarize 1-4 in abstract 2/2
   2. Paragraph 2: highlight one key finding, what it means and whether it agrees/disagrees with hypothesis 2/2
   3. Last Paragraph: Future directions, how could you improve the analysis/code? 6/6

-2 Paper is too long. Figure 3 and 4 give the same overall information - could have skipped one of them or only shown a couple panels for illustration of the idea.

11. Total 82.5/100